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ABSTRACT

A literature search revealed various definitions of literacy and various theories about how basic skills relate to occupational skills. For example, literacy was said to be defined within the context of a society and was often measured in society, rather than in isolation. Alarms were sounded about the many people in the United States who lack basic skills; many of these people are members of minority groups. Some studies found that effective cognitive development was placing learning objectives within a real world environment; i.e., literacy must be defined in context. Competencies were found to be both basic and specific to various occupational fields. Restructuring of adult vocational education and workplace literacy programs demands the establishment of a national system of world-class occupational skill standards. Based on the literature search, a study was conducted to determine the correlation between literacy and basic skills and workplace occupational skills. The population for the study included 30 employees in various fields working for a variety of employers large and small. The study population was administered a modified version of the Self-Directed Search and the Tests of Adult Basic Education. The survey found that those persons displaying high occupational skills also had high basic and literacy skill levels and were more likely to be engaged in technical or professional types of occupations. Therefore, the study concluded that there is a correlation between basic and literacy skills and occupational skills. The results of the study suggest that the workplace demands an increased level of basic skills, and the amount of education and skill clusters workers have affects their occupation, performance, and pay. (Contains 21 references.) (KC)

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The Correlation Between Literacy/Basic Skills and Occupational Skills

Jacqueline Smith

Some experts feel, America is running out of qualified people. Over the next ten years, 80% of new jobs will require some type of higher education, according to research conducted by the U.S. Department of Labor. They estimated, at least one year of college, will be required for most jobs by the year 2000 and others placed two years of college, as the minimum work place literacy level. In contrast to, the World War II era, where only a fourth grade education was sufficient. In the traditional work place, even though education was valued, the undereducated and uneducated could find some type of employment, but this will not hold true in the workplace by the year 2000.

The transition from the industrial age to the technological age has caused us to reevaluate the basic and occupational skills of our workforce. The new workplace 2000 will require highly skilled, self-managed, literate, and critical thinking employees.

These issues along with job qualification and upskilling present an additional disadvantage for minorities. Trends reflect minorities will represent more than half of the work force in the next decade. Unfortunately, it was found that minorities were generally less well educated. The Bureau Labor Statistics estimated 26 million new workers in the workplace in the year 2005. Findings in The New York Times (1992) reflected the composite of the new workplace will be 54% minorities: Hispanic workers will represent 27.8 %, Blacks will account for 15%, and Asians 10.1% Adult Literacy in the U.S. recorded the following findings: adults classified as illiterate, 41% live in central metropolitan areas, 56% are under the age of fifty, 37% are non-English speaking, and 70% did not finish high school. Consequently, enrollment increased in adult basic skills, and English as a second language programs. According to Illinois Schools Journal (1989), the enrollment breakdown was +241% Asian, +175 Black, +131 Hispanic, and +38% White.

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Yet, an increasingly diverse workforce without the proper skills will make it harder to compete in a global market place. To compete with Japan and Germany higher math, reading, and interpersonal skills will be required. According to a June, 1992, New York Times article, the United States spent 5.7 million of gross domestic products (GDP) compared to Japanese 4.7 and Germany 4.2. America test scores were average in reading and below in math. Overall, 25 percent of all American high school students dropped out of school before graduation. Some experts say the prosperity of all Americans is at risk. Substandard education and training implies a lower standard of living for all Americans.

Unfortunately, the high cost of training young people for entry level jobs, caused companies to relocate overseas where they could find educated, technically inept, and astute entry level workers. The dilemma faced is advanced technology, fewer jobs, and an unprepared workforce.

This brings us to the question:Is America under a literacy alert? There is a consensus among business that, American education hasn't supported the needs of the business workforce. According to a survey by ASTD (1994) ten million currently working adults in the United States were found to be functionally illiterate or only marginally literate, and thirty million workers needed retraining. Illiteracy cost the U.S. 225 billion a year in lost productivity, basic skills were especially deficient in small and medium companies. Consequently, companies and government have invested large amounts of monies in workplace training. However, because of the limited amount of funding, the issue of which skill set to emphasize, basic or occupational is an issue that needs to be addressed.

Research has been conducted in the area of workplace literacy and job skill competencies. The objective was to identify what types of skills are required for specific occupations. Workplace literacy programs emphasize the basic skills of reading, writing, and math. The question is, are these dependent or independent skill sets? The findings of Sayers (1995) concluded academic and workplace skills were totally different phenomena.

While some have the attitude and belief that the area of literacy (basic skill) was the main point of emphasis. Others felt, if a person was in a specified occupation certain basic skills had been acquired. Any other skills were irrelevant, especially if they didn't relate to practical job applications. This becomes a critical issue when you consider funding. According to the Illinois Department of and Community Affairs, the state funded approximately 32 million in 1995 for Adult Basic Education(ABE)/Literacy/GED and only 4 million in Workforce Preparation Grants. With this disproportion in funding and additional cut backs in ABE programs for 1996, we can't afford to reeducate or train in the wrong skill areas. Estimated cuts in education programs under continuing resolution for 1996-97 is $101,000 for adult education programs. Education Daily (Jan. 1996). In any event, we need to evaluate which set of skills each program is emphasizing and determine if their is an overlap or a deemphasis in the incorrect skill area. Also, are the skills related to the demands of the market place.

Several trends in the 20th Century made us reevaluate workplace literacy: globalization of industry and the technological explosion. Also, the fifth national educational goal: "By the year 2000 every adult will be literate and possess the skills necessary to compete in a global economy and to exercise the rights and responsibilities of citizenship. Yet reports continue to show a declining level of functional literacy and a higher level of skills required for the workplace. The problem is the nature of literacy itself according to The National Clearinghouse on Literacy Education (1991).

Literacy itself is defined by the Webster's Ninth Edition Collegiate Dictionary (1988) as the state of being literate meaning educated able to read and write. Harman in Illiteracy A National Dilemma (1987) stated, that to define literacy is like a walk to the horizon, the closer you get the more it recedes. As people receive new skills formerly defined as literacy, changes in society continue to render them obsolete. Definitions of literacy need to be, "situation specific" perceived as necessary by members of a group to fulfill their own self-determined objectives as family, community members, citizens and employee.

Workplace literacy is defined by the National Literacy Act 1991, as an individuals ability to read, write, speak English, and compute and solve problems at levels of proficiency necessary to function on the job.

Occupational skills are defined as the competencies required for entry level employees in vocationally oriented occupations. The skills indicate the specific knowledge and capabilities necessary to function in a particular occupation. Also referred to as, key competencies or generic skills.

The debate continued as some dichotomized that literacy should be conceptualized as a single set of measurable skills, others argued that it was better portrayed as the ability to perform specific print related practices in specific social contexts, Heath(1980); Scribner & Cole, (1981): Street (1984). In addition, **Hunter and Harman (1979)** noted that competencies selected for testing were not negotiated with those tested, but imposed...

Yet, others suggested in a culturally heterogeneous society, literacy is not inherently individualized but becomes an interactive process, that is constantly redefined, and renegotiated, as the individual mixes with society. Based on the above definitions literacy is as a real time problem centered, dynamic, set of competencies developed from various social situations. Besides, considering the learners past experience and culture in the measurement of skills.

Similarly, **Scribner and Cole (1981)** defined literacy as a set of cultural practices developed in and for different social contexts. Reder (1981) argued that literacy was a shared activity not individual profiency with particular skills. Likewise, **Ferdman (1990)** argued literacy was framed and defined by the culture of the learner. More than just the basic but included the ability to both comprehend and manipulate symbols. Further, Ferdman cautioned, the value placed on literacy in one culture will not be equivalent in another culture. Consequently, **Fingeret(1989)** warned against judging nonreading adults within the normative framework of the dominant reading culture.

Recognizing the need to incorporate culture into the idealology of literacy, **Shore and Platt (1984)** found cultural and social factors impacted Samoan immigrants adaptation to the Amerian workplace. For example, the high value placed on human relations within the Samoan community differed from employer's expectations of punctuality and consistent attendance on the job. Also, young Samoans acted submissive in the presence of older adults and didn't communicate well on interviews conducted by older people especially when questioned about accomplishments. The conclusion was the use of ethnography. This is the understanding and representation of different points of views from members of a particular culture. The use of ethnographic methods in the design and focus on workplace literacy and skills assessment allows for a clearer understanding and places literacy learning in context of social practices.

Kirsch and Guthrie (1982) studied on the job readiness of 42 service and clerical workers at Chesapeake Telephone Company and found the amount of time workers engaged in various reading activities significantly predicted their performance on job related task.

Likewise, **Stecht (1982)** found people enhanced their reading ability two-fold to perform specific job related task even though they didn't improve on standardized reading test that measured generalized reading ability. It reiterated the importance of learning in context.

A survey conducted in France, Germany, Italy, Spain, and the United Kingdom analyzed comparability on evaluating skills and qualifications, and the evaluation of acquired skills. **Bertrand (1992)** stressed employers interest in the evaluation of work experience and personal qualification. There was a favorable agreement on establishing a portfolio of competencies and validating acquired skills. The validation of skills from both continued training and work experience. In the area of evaluation of competencies they felt subjectivity and cultural particularities play an essential role. This support Ferdman's (1990) viewpoint.

Custer and Claiborne (1992) completed a descriptive study on the perceptions of vocational educators regarding types of skills necessary for the upcoming workforce. Critical skills sets were identified as technical, basic, and employability. The hypothesis was that business and industry required much more than job-specific skills. In addition, they conducted a modified operational replication to investigate the difference of perceptions in two industries, health care, and technical regarding critical entry level skills. Several questions were examined: 1) How perceptions of supervisors and employment officers compared relative to critical entry level skills? 2) Did these priorities change over time? 3) Were their differences in priorities depending on the educational level? 4) Did critical skill clusters priorities differ depending on company size? and 5) What was the degree of match between educators perceptions of employers an employees critical job skills? The findings illustrated employers placed a higher value on employability and basic skills. Contrary to how vocational educators rated the development of technical skills over basic and employability skills.

Ford and Herren (1991) studied work ethics to better understand the significance of employability skills. Their methodology was a questionnaire developed for an sampling of work program coordinators in Georgia. These students attended school and were employed. Of the 42 secondary work programs they sampled 170 of which 160 were returned.Of the respondents 58 were male and 102 were females. The conclusions of the study found work ethnics were taught irratically because of the lack of training for the coordinators and inconsistencies in the curriculum.This becomes an integral part of workplace training with the emphasis on diversity in the workplace.

Blatt and Kohlberg (1975) and Noddings (1991) introduced another concept of moral development embedded in work ethic, **employability**. They concluded a positive work ethnic enabled one to become a true asset to the workforce .

Cilliers (1991) developed an instrument for organizations in Africa that determined and monitored their needs regarding non-formal skill training. The instrument was a matrix model. He distinguished occupational skills by six categories. Each group of skills for the job category was assessed on a scale of 1 to 6. The matrix was completed based on the present situation, an ideal situation, and future scenario within a given time frame. The skill levels were: handling skills, technological knowledge, thinking, human, and management skills. This information was necessary to decide the condition of skill training, satisfactory, major problems etc. based on the findings in the matrix..

One of the most extensive studies relating skills to occupational competencies was the Secretary's Commission on Achieving Necessary Skills **(SCANS 1992)**. The objective of the Commission s determined the skill levels for entry level employment. An experimental study in which major types of skills and names were identified and determined by experts. This comprised the SCANS job analysis. The sampling consisted of thirty-five organizations 203 interviews and 50 specific occupations. Four interviews were conducted per job. The importance of the skill and various levels of difficulty was determined by task identifiers. These job skills were broken up into competencies and foundations. (See Table 1)

TABLE 1

SCANS SKILL LEVELS

Competencies	Identifier	Foundations	Identifier
Resources	C1-C4	Basic	F1-F5
Information	C5-C8	Thinking	F6-F12
Interpersonal	C9-C14	Personal Qualities	F13-F16
Systems	C15-C18		
Technology	C18-C26		

These competencies differed from technical knowledge in that they represented the attributes that high performance employers would seek in tomorrow's employees. The study concluded effective cognitive development was placing learning objectives within a real world environment. The Testing for Adult Basic Education (TABE) created a new series of testing based on these competencies, categorized by specific occupation e.g. health care, office, general business.

In an attempt to upgrade the workforce one of the first steps is restructuring adult vocational education and workplace literacy programs. This necessitated the establishment of a national state system of world class occupational skill standards . Occupational skills would provide the necessary foundation for addressing the role of the state in workplace literacy programs, improved effectiveness and efficiency of public programs, and development of a public - private credentialing system that promotes worker mobility. The national skill standard should be based on the assumptions about the role and structure of skill standards in state workplace preparation programs, the need for basic enabling skills, independent performance, based on federal- state labor market policies, state education goals, skill assessment, and credentialing **Sheets(1992).**

The U.S. Department of Labor and the North Carolina Occupational Analysis Field Center developed a Content Model-Based Workplace Literacy Definitions and Procedures for Estimating Occupational Literacy Levels. The objective was two-fold: 1) investigate definitions of literacy and explore methods of obtaining workplace literacy estimates of acceptable clusters and 2) investigate methods of linking occupational literacy requirements and individual literacy levels. The advisory panel made recommendations on replacing the Dictionary of Occupational Titles with a new systems named O*NET or Occupational Information Network. It is a database of occupational information such as skills, abilities, interests, and job activities. The competencies were derived from the SCAN's report. This is the first step in linking occupational skills with basic skills. It sorts occupations by skill requirement thereby identifying skill standard, and making a job person match.

Literacy programs should be participatory in nature they should have recognized, and respected the knowledge skills experience and aspiration of the students involved. These approaches necessitated the teachers and learners engaged in cross-cultural communications, negotiation, and mutual learning.

National studies agreed with policy makers that there was a need for expanded and improved workforce training to keep our nation competitive in a global economy.

The March, 1995 issue of Vocational Education Journal reported that the Perkins Act mandated performance standards because of the uncertain doubt of standardized testings effectiveness. (TABE-basic skills). Consequently, there was a shift away from written assessment to occupational skills (SDS-occupational). State policies changedwith regard to the types of skills to be measured. The greatest expansion occurred in testing and assessment of job-specific skills.

Therefore, the purpose of the study is to determine the correlation between literacy/basic skills and workplace occupational skills.

Procedures

Population/Sample

The population for this study will include 30 employees in the technical, administrative, education and social service fields. They are employes of TCI, Ameritech, Rush Laundry, CPS, various social service agencies, and cross industry. Fifteen employees were chosen at random from a GED and workplace basic skill program. Fifteen were randomly selected from other companies cross industry. The company size ranged from large, medium, to small.

A modified version of the Self-Directed Search (SDS) and The Tests of Adult Basic Education (TABE) locator was administered individually and in a classroom environment to the sample. The SDS was modified to include only three sections: activities, competencies, and self-estimates, four items in each. Each of the three sections contain six clusters: I=Investigator, S=Social, E=Enterprising, C=Conventional, R=Realistic, and A=Artistic. The single group pretest-posttest design was used.

Instrument

The instrument used will be the Self-Directed Search (SDS). It was modified to include three sections:, 1) activities, 2) competencies, and 3)self-estimates. There are four items in each. section and each section contains six clusters: I=Investigator, S=Social, E=Enterprising, C=Conventional, R=Realistic, and A=Artistic.
Each cluster was assigned a value in relation to the level of education required to perform the occupation.

Level		
	I=10	C=7
	S=9	R=6
	E=8	A=5

Normative data was collected by checking yes or no, and like or dislike. The self-estimate portion involved rating ones ability in comparison to others in the same age group. The measures of internal consistency range from .70 to .93. The construct and predictive validity range from 40% to 55%.

The Tests of Adult Basic Education (TABE) was employed for the IV -basic skills.The locator only was used because of it's lengthiness. The locator denotes the level. There are four levels, 1) easy 2) medium 3)difficult and 4) advanced. Each score is equivalent to a grade level. The reliability factor = .94

Both instruments were tested on ten people as a pilot study. This was done to determine the effectiveness of the modified versions. The test revealed a positive representation for the study.

The findings will be tabulated in terms of means and standard deviations. The Pearson Product-Moment Coefficient test will be employed at the .05 level of confidence to determine the statistical significance of the findings. Crosstabs will be employed to determine the influence of age, ethncity, education, and occupation type on the responses.

Findings

Using the Pearson Product-Moment Coefficient a test was done on the results of the SDS and TABES to determine if there was a statistically significant correlation. Table 2 summarizes the statistical analysis.

Correlation Between Basic Literacy Skills and Occupational Skills

Table 2

	Mean	S.D.	Correlation with SDS r	r
SDS	8.0	1.0		
TABE	8.0	4.0	.67	44%
Age 36-45	3.0	1.0	1.0	
Education H.S.	2.0	1.0	1.0	

N = 30

According to the table of r's at:
.05 (confidence level), r = .35
.01 (confidence level), r = .45
.001(confidence level), r = .55

Table 2 indicates that there is a statistically significant correlation between scores on the SDS and those of TABE basic skills, age and education. The general coefficient (r) interpretation is :
.00-.20 = Negligible
.20-.40 = Low
.40-.60= Moderate
.60-.80 = Substantial
.80-1.00 = High very high

Table 3- Correlational Statistics

Statistic-DV	Value
No. of Scores (n)	30
Sum of Scores	242
Mean	8
Sum of Squared Scores	26
SD	1.0

Statistic-IV	
Sum of Scores	238
Mean	8
Sum of Squared Scores	457.73
SD	4
Sum of (xy)	73.80

$$\frac{73.80}{(26)(457.73)} = \frac{73.80}{11900} = \frac{73.80}{109} \quad r=.67$$

It appeared from the surveys that those persons displaying high occupational skills parallel with high basic/literacy skill levels. Likewise these were the more technical, professional type of occupations. It should be noted that the most significant correlation was found between the extraneous variable of age and educational levels (r=1). This substantiates the review of literature that the more education the more likely one would possess basic skills and their is a direct impact on occupational skills required in the workplace. Workplace competencies relied heavily on complex interaction with basic skills, thinking skills, and personal qualities. Basic skills being the foundation for other competencies required in the workplace. Basic skills are seen as building blocks for problem solving, critical thinking, creativity, decision making based on complex information, and transferring knowledge.

Overall the date leads to rejection of the null hypothesis and the acceptance of the research hypothesis; there is a correlation between basic/literacy skills and occupational skills.

The research agrees with Sheets (1992) that the first step is restructuring workplace literacy/basic skills programs. This necessitates the establishment of a national skill standard. "A national workforce development policy is essential to move the U.S. forward in a technologically advanced society

The results of this study suggest that the workforce of tomorrow demands an increase level of basic skills. Likewise, the amount of education and skill clusters impact the occupation, performance, and pay. The more technical a position the greater the need for basic skills. Basic skills was deficient in service, manufacturing type jobs.

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